Draft for Review

November 24, 2015 Reference No. 038443

Mr. Timothy D. Hoffman
Dinsmore & Shohl
Fifth Third Center
1 S. Main St. Suite 1300
Dayton, Ohio
45402

Mr. Don Overstreet – Tenant
Overstreet Painting
2019 Dryden Road
Moraine, Ohio
45439

Dear Messrs. Hoffman and Overstreet:

Re: Summary of Vapor Intrusion Sampling Results
Overstreet Painting – Building 12
South Dayton Dump and Landfill Site, Moraine, Ohio

GHD (formerly Conestoga-Rovers & Associates [CRA]) prepared this letter to inform you of the results of the vapor intrusion (VI) sampling completed at your property from 2012 to 2015. Sub-slab (SS, space under your building floor) and indoor air (IA) samples were collected in 2012 as part of the VI investigation at the South Dayton Dump and Landfill (SDDL) Site, and from 2013 to 2015 to evaluate the performance of the installed sub-slab depressurization system (SSDS). The sample locations within Overstreet Painting (designated as Building 12, southern portion) are presented on Figure 1. GHD is conducting this work on behalf of the companies that have responded to Agency requests for Site investigation and VI studies (Respondents). Oversight is being performed by USEPA.

VI is the migration of volatile chemicals from the subsurface into overlying buildings. VI is a potential concern at any building, existing or planned, located near soil, groundwater, or soil vapor containing solvent- or petroleum-based compounds that may volatilize or chemicals that are combustible.

GHD collected SS and IA samples to determine if solvent- or petroleum-related compounds are present in soil vapor beneath the foundation and in indoor air within the buildings at levels which exceed SS and/or IA screening levels, as established by the Ohio Department of Health (ODH).

The ODH has recommended the screening levels for SS and IA samples. The screening levels represent concentrations of substances that are unlikely to cause harmful (adverse) health effects in exposed people, based on residential exposure. Detections in IA below these levels are not a health concern. The SS screening levels are calculated based on an attenuation factor (AF) to account for the mixing and ventilation that occurs when vapors enter the IA space[1]. In November 2015, USEPA

[1] The 2012 ODH Screening levels were calculated based on an AF of 10, reflective of 2002 USEPA guidance. USEPA revised and issued final VI guidance in 2015 which utilizes an AF of 33 for residential buildings; see "OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Source to Indoor Air (USEPA, June 2015) (Final Vapor Intrusion Guidance)".

GHD Services Inc.
9033 Meridian Way West Chester Ohio 45069 USA
T 513 942 4750 **F** 513 942 8585 **W** www.ghd.com

proposed to supplement the ODH screening levels for the industrial buildings with SSDSs at the Site with SS values based on an AF of 33, to reflect current VI guidance for residential buildings [screening levels calculated based on an AF of 33 are referred to as ODH SS screening levels (AF=33)]. GHD collected and submitted samples to TestAmerica Inc. GHD received and validated the results of the laboratory analysis. A copy of the validated analytical results compared to the ODH screening levels (AF=10) can be found in Table 1.

Compounds detected at concentrations greater than the ODH SS screening levels (AF=10; AF=33) and ODH IA screening levels from SS and IA samples are presented below. All of the sample results are reported in units of parts per billion by volume (ppbv).

Table A Summary of Building 12 Sampling Results for Overstreet Painting

Location	Sample Type	Sampling Date	Parameter	Detected Concentration (ppbv)	ODH IA Screening Level (ppbv)	ODH SS Screening Level (AF=10; AF=33) (ppbv)
SS-12-OP-A	Sub-slab	01/06/2012	cis-1,2-Dichloroethene (cis-1,2-DCE)	570	Not Applicable	370; 1,221
		03/15/2012		920		
		10/24/2013		990		
		01/06/2012	Trichloroethylene (TCE)	2,400	Not Applicable	20; 66
		03/15/2012		2,600		
		10/24/2013		4,800		
		01/17/2014		710		
		04/03/2014		950		
		02/18/2015		270		
		07/13/2015		460		
SS-12-OP-B	Sub-Slab	01/06/2012	cis-1,2-DCE	440	Not Applicable	370; 1,221
		03/15/2012		770		
		01/06/2012	TCE	2,800	Not Applicable	20; 66
		03/15/2012		5,400		
		10/24/2013		4,700		
		01/17/2014		4,500		
		04/03/2014		1,100		
		02/18/2015		1,500 / 1,500		
		07/13/2015		1,300		
SS-12-OP-C	Sub-Slab	10/24/2013	TCE	1,800	Not Applicable	20; 66
IA-12-OP-A-2012	Indoor Air	03/15/2012	Benzene[A]	9.7	2	Not Applicable
			TCE	5.0	2	Not

Table A Summary of Building 12 Sampling Results for Overstreet Painting

Location	Sample Type	Sampling Date	Parameter	Detected Concentration (ppbv)	ODH IA Screening Level (ppbv)	ODH SS Screening Level (AF=10; AF=33) (ppbv)
						Applicable
IA-12-OP-A	Indoor Air	10/24/2013	Benzene[A]	8.8	2	Not Applicable
		01/17/2014		3.5		
		04/03/2014		7.4		
		02/18/2015		5		
		07/13/2015		4.4		
		02/18/2015	Naphthalene[A]	3.3	2.9	Not Applicable
		10/24/2013	TCE	6.0	2	Not Applicable
IA-12-OP-B	Indoor Air	03/15/2012	Benzene[A]	14	2	Not Applicable
		10/24/2013		11		
		01/17/2014		5.0		
		04/03/2014		25		
		07/13/2015		4.2		
		03/15/2012	TCE	5.6	2	Not Applicable
		10/24/2013		5.8		

Notes:

Value / Value – Result / Duplicate Result
[A] – This compound was either not detected or detected at concentrations less than the ODH screening level in the adjacent sub-slab soil vapor sample, indicating that the indoor air concentration is not due to vapor intrusion

What do these results mean?

Benzene and naphthalene were detected in IA samples at concentrations greater than ODH IA screening levels. These compounds were either not detected or detected at concentrations less than ODH SS screening levels in the co-located SS soil vapor samples, indicating that the IA concentrations are not due to VI but instead are due to presence in ambient air. In 2012 and 2013, TCE was detected in both IA and SS samples at concentrations greater than ODH IA and SS screening levels and cis-1,2-DCE was detected in SS samples at concentrations greater than ODH SS screening levels (AF=10), indicating that VI of TCE was occurring and there was the potential for VI of cis-1,2-DCE to occur.

The installation of the SSDS in Overstreet Painting Building 12 was completed on September 30, 2013, with upgrades completed on December 6, 2013, and March 6, 2014. Since the installation of the

SSDS, the concentrations of cis-1,2-DCE decreased to less than ODH SS screening level. The concentrations of TCE in SS soil vapor decreased significantly since the installation of the SSDS, yet remain greater than the ODH SS screening level (AF=33). Following the installation of the SSDS, IA concentrations of TCE decreased to less than the ODH IA screening level, which indicates that the SSDS is mitigating VI from SS soil vapor into IA.

Conclusion

Based on the TCE SS soil vapor sample exceedances of ODH SS screening levels (AF=10 and AF=33), continued operation of the SSDS for Building 12 is required and system upgrades should be considered.

Recommendations

As presented on Figure 1, U.S. EPA and GHD propose to install one additional stemline (EP-1 stemline 2) in Overstreet Painting in the vicinity of SS-12-OP-B in order to further address the TCE exceedances at that location. GHD will collect samples 60 days following the proposed system modifications to verify that the SSDS is operating to reduce concentrations to less than applicable criteria.

GHD will install valves at all extraction points, where possible, to control and reduce the amount of vacuum applied to the sub-slab. GHD notes that it may not be feasible to install valves at all suction points due to the existing system configuration.

We would like to discuss the information and recommendations provided in this letter with you and will be in contact to make arrangements for a meeting.

Thank you for your cooperation. If you have questions related to the sampling or on-going site investigation, please do not hesitate to contact the undersigned.

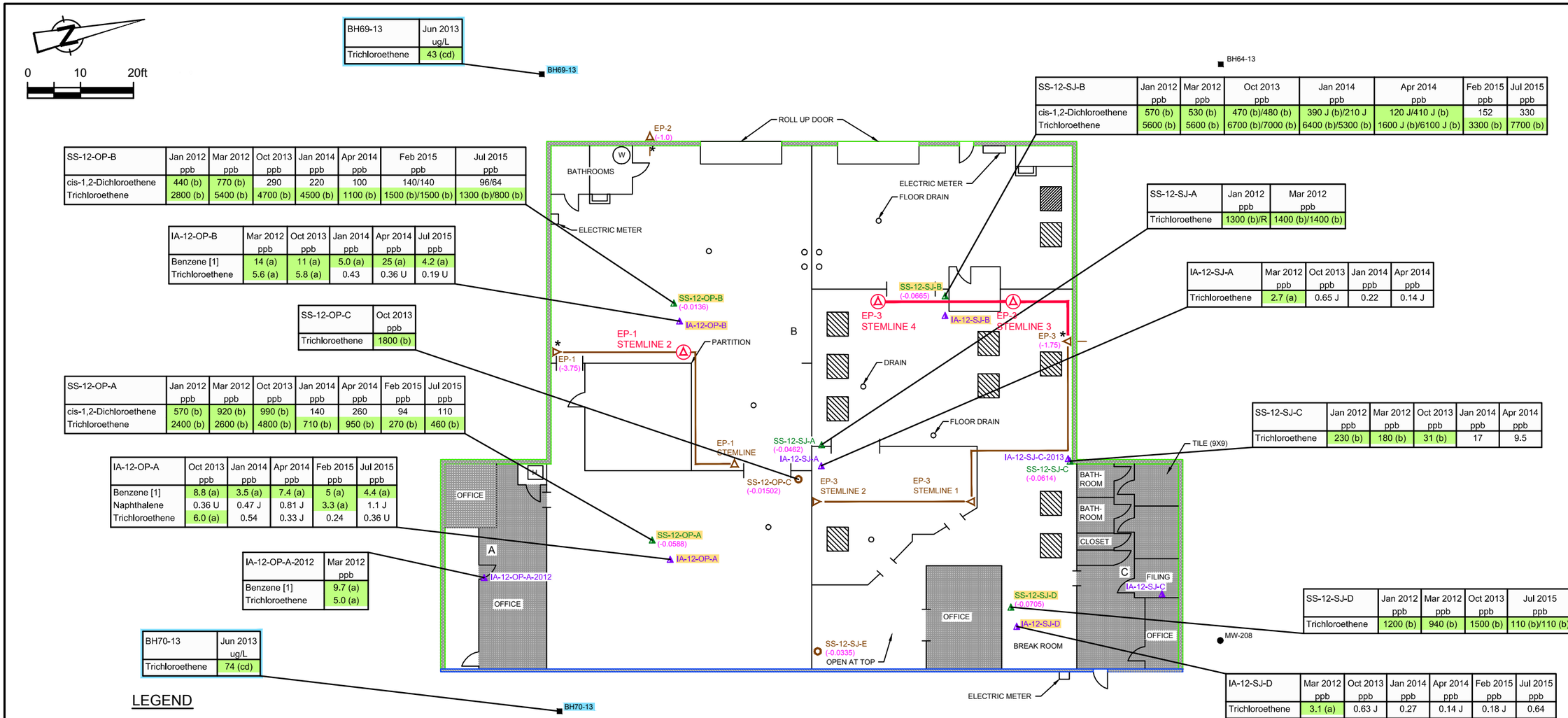
GHD Services Inc.

Julian Hayward

VC/cb/1

Encl.

cc: Steve Renninger - U.S. EPA Removal Program Manager
Leslie Patterson – U.S. EPA Remedial Program Manager
Jenny Davison – U.S. EPA Remedial Program Manager
Maddie Adams – Ohio EPA, Site Coordinator



Chemical	ODH Non-Residential Screening Levels		USEPA Regional Screening Levels (THQ = 0.1)	
	Indoor Air (a) (ppb)	Sub-Slab (b) (ppb)	MCL (c) (µg/L)	Protection of Industrial Indoor Air (d) (µg/L)
Benzene	2	20	5	7.05
cis-1,2-Dichloroethene	37	370	70	-
Naphthalene	2.9	29	0.17	20.01
Trichloroethene	2	20	5	2.19

figure 1

2015/2019 DRYDEN ROAD
PARCEL NUMBER 5172, BUILDING 12
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

Table 1

Summary Of Building 12 - Overstreet Painting VI Analytical Results
South Dayton Dump And Landfill Site
Moraine, Ohio
2012-2015

Sample Location:					IA-12-OP-A	IA-12-OP-A	IA-12-OP-A	IA-12-OP-A	IA-12-OP-A	IA-12-OP-A	IA-12-OP-A-2012
Sample Date:					10/24/2013	1/17/2014	4/3/2014	2/18/2015	2/18/2015	7/13/2015	3/15/2012
	ODH Non-Residential Screening Levels		ODH Non-Residential Action Levels								
Parameters	**Sub-Slab Soil Gas**	**Indoor Air**	**Sub-Slab Soil Gas**	**Indoor Air**							
	a	**c**	**b**	**d**							
Volatile Organic Compounds											
1,1-Dichloroethane	160	16	1600	160	0.10 U	0.026 U	0.052 U	R	0.24 U	0.26 U	0.026 U
Benzene	20	2	200	20	8.8[c]	3.5[c]	7.4[c]	R	5[c]	4.4[c]	9.7[c]
Chloroform (Trichloromethane)	800	80	8000	800	0.15 U	0.038 U	0.076 U	R	0.12 U	0.38 U	0.23
cis-1,2-Dichloroethene	370	37	3700	370	0.35 J	0.060 U	0.12 U	R	0.62 U	0.60 U	0.35
Ethylbenzene	2500	250	25000	2500	9.9	4.8	12	R	8.8	10	8.4
m&p-Xylenes	2000	200	20000	2000	37	19	46	R	34.4	44	34
Naphthalene	29	2.9	-	-	0.36 U	0.47 J	0.81 J	R	3.3[c]	1.1 J	0.37 J
o-Xylene	2000	200	20000	2000	12	6.2	17	R	10.1	15	12
Tetrachloroethene	250	25	2500	250	0.16 U	0.18 U	0.080 U	R	0.13 U	0.40 U	0.24
Trichloroethene	20	2	200	20	6.0[c]	0.54	0.33 J	R	0.24	0.36 U	5.0[c]
Vinyl chloride	20	2	200	20	0.28 U	0.071 U	0.14 U	R	0.13 U	0.71 U	0.071 U
Radiology											
Radon-222	-	-	-	-	-	-	-	-	-	-	2.1 +/-0.1

Notes:

All units are in parts per billion by volume (ppbv)
J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- - Not applicable.
[ ] - Concentration was greater than applicable criteria.

Table 1

Summary Of Building 12 - Overstreet Painting VI Analytical Results
South Dayton Dump And Landfill Site
Moraine, Ohio
2012-2015

Sample Location:					IA-12-OP-B	IA-12-OP-B	IA-12-OP-B	IA-12-OP-B	IA-12-OP-B	OA-12-OP	OA-12-OP
Sample Date:					3/15/2012	10/24/2013	1/17/2014	4/3/2014	7/13/2015	3/15/2012	4/3/2014
	ODH Non-Residential Screening Levels		ODH Non-Residential Action Levels								
Parameters	Sub-Slab Soil Gas	Indoor Air	Sub-Slab Soil Gas	Indoor Air							
	a	c	b	d							
Volatile Organic Compounds											
1,1-Dichloroethane	160	16	1600	160	0.10 U	0.10 U	0.026 U	0.26 U	0.14 U	0.026 U	0.026 U
Benzene	20	2	200	20	14[c]	11[c]	5.0[c]	25[cd]	4.2[c]	0.22	0.33
Chloroform (Trichloromethane)	800	80	8000	800	0.37 J	0.15 U	0.038 U	0.38 U	0.21 J	0.074 J	0.038 U
cis-1,2-Dichloroethene	370	37	3700	370	0.37 J	0.36 J	0.060 U	0.60 U	0.31 U	0.060 U	0.060 U
Ethylbenzene	2500	250	25000	2500	10	13	7.4	29	8.9	0.068 U	0.13 J
m&p-Xylenes	2000	200	20000	2000	37	50	29	110	37	0.12 U	0.44
Naphthalene	29	2.9	-	-	0.89 J	0.54 J	0.51 J	0.90 U	0.47 U	0.090 U	0.090 U
o-Xylene	2000	200	20000	2000	12	16	9.4	38	12	0.061 U	0.17 J
Tetrachloroethene	250	25	2500	250	0.51 J	0.16 U	0.12 U	0.40 U	0.21 U	0.057 J	0.040 U
Trichloroethene	20	2	200	20	5.6[c]	5.8[c]	0.43	0.36 U	0.19 U	0.10 J	0.036 U
Vinyl chloride	20	2	200	20	0.28 U	0.28 U	0.071 U	0.71 U	0.37 U	0.071 U	0.071 U
Radiology											
Radon-222	-	-	-	-	2.0 +/-0.1	-	-	-	0.04 +/-0.06	-	-

Notes:

All units are in parts per billion by volume (ppbv)
J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- - Not applicable.
[ ] - Concentration was greater than applicable criteria.

Table 1

Summary Of Building 12 - Overstreet Painting VI Analytical Results
South Dayton Dump And Landfill Site
Moraine, Ohio
2012-2015

Sample Location:					OA-12-OP-2015	OA-12-OP-2015	SS-12-OP-A	SS-12-OP-A	SS-12-OP-A	SS-12-OP-A	SS-12-OP-A
Sample Date:					2/18/2015	7/13/2015	1/6/2012	3/15/2012	10/24/2013	1/17/2014	4/3/2014
	ODH Non-Residential Screening Levels		ODH Non-Residential Action Levels								
Parameters	Sub-Slab Soil Gas	Indoor Air	Sub-Slab Soil Gas	Indoor Air							
	a	c	b	d							
Volatile Organic Compounds											
1,1-Dichloroethane	160	16	1600	160	0.026 UJ	0.026 U	5.3 U	5.8 J	6.6 U	0.61 U	2.1 U
Benzene	20	2	200	20	0.15 J	0.12 J	2.7 U	3.9 U	14 U	1.3 U	4.6 U
Chloroform (Trichloromethane)	800	80	8000	800	0.038 UJ	0.038 U	51	66	100	11	17
cis-1,2-Dichloroethene	370	37	3700	370	0.060 UJ	0.060 U	570[a]	920[a]	990[a]	140	260
Ethylbenzene	2500	250	25000	2500	0.068 UJ	0.084 J	3.3 U	4.7 U	17 U	1.6 U	5.6 U
m&p-Xylenes	2000	200	20000	2000	0.12 UJ	0.32	7.2 U	8.3 U	30 U	2.8 U	9.8 U
Naphthalene	29	2.9	-	-	0.090 UJ	0.090 U	13 U	6.2 U	23 U	2.1 U	7.4 U
o-Xylene	2000	200	20000	2000	0.061 UJ	0.12 J	3.3 U	4.2 U	15 U	1.4 U	5.0 U
Tetrachloroethene	250	25	2500	250	0.040 UJ	0.040 U	3.8 J	3.9 J	10 U	1.1 J	3.3 U
Trichloroethene	20	2	200	20	0.036 UJ	0.036 U	2400[ab]	2600[ab]	4800[ab]	710[ab]	950[ab]
Vinyl chloride	20	2	200	20	0.071 UJ	0.071 U	4.4 U	4.9 U	18 U	1.7 U	5.8 U
Radiology											
Radon-222	-	-	-	-	-	-	-	418 +/-21	-	-	-

Notes:

All units are in parts per billion by volume (ppbv)
J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- - Not applicable.
[ ] - Concentration was greater than applicable criteria.

Table 1

Summary Of Building 12 - Overstreet Painting VI Analytical Results
South Dayton Dump And Landfill Site
Moraine, Ohio
2012-2015

Sample Location:					SS-12-OP-A	SS-12-OP-A	SS-12-OP-B	SS-12-OP-B	SS-12-OP-B	SS-12-OP-B	SS-12-OP-B	SS-12-OP-B
Sample Date:					2/18/2015	7/13/2015	1/6/2012	3/15/2012	10/24/2013	1/17/2014	4/3/2014	2/18/2015
	ODH Non-Residential Screening Levels		ODH Non-Residential Action Levels									
Parameters	Sub-Slab Soil Gas	Indoor Air	Sub-Slab Soil Gas	Indoor Air								
	a	c	b	d								
Volatile Organic Compounds												
1,1-Dichloroethane	160	16	1600	160	0.52 U	0.35 U	5.2 U	5.9 U	5.2 U	2.1 U	2.1 U	3.6 U
Benzene	20	2	200	20	1.1 U	0.76 U	2.7 U	13 U	11 U	4.5 U	16	7.7 U
Chloroform (Trichloromethane)	800	80	8000	800	6.1	8.8	71	110	97	68	22	25 J
cis-1,2-Dichloroethene	370	37	3700	370	94	110	440[a]	770[a]	290	220	100	140
Ethylbenzene	2500	250	25000	2500	1.4 U	0.93 U	3.3 U	15 U	14 U	5.4 U	21	9.3 U
m&p-Xylenes	2000	200	20000	2000	3.4 J	3.2	7.1 U	27 U	24 U	9.6 U	78	16 U
Naphthalene	29	2.9	-	-	1.8 U	1.2 U	13 U	20 U	18 U	7.2 U	7.1 U	12 U
o-Xylene	2000	200	20000	2000	1.2 U	1.2 J	3.3 U	14 U	12 U	4.9 U	27	8.4 U
Tetrachloroethene	250	25	2500	250	14	1.7 J	4.9 J	9.8 J	30 J	37	13 J	16 J
Trichloroethene	20	2	200	20	270[ab]	460[ab]	2800[ab]	5400[ab]	4700[ab]	4500[ab]	1100[ab]	1500[ab]
Vinyl chloride	20	2	200	20	1.4 U	0.97 U	4.3 U	16 U	14 U	5.7 U	5.6 U	9.8 U
Radiology												
Radon-222	-	-	-	-	-	-	-	514 +/-26	-	-	-	-

Notes:

All units are in parts per billion by volume (ppbv)
J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- - Not applicable.
[ ] - Concentration was greater than applicable criteria.

Table 1

Summary Of Building 12 - Overstreet Painting VI Analytical Results
South Dayton Dump And Landfill Site
Moraine, Ohio
2012-2015

Sample Location:					SS-12-OP-B	SS-12-OP-B	SS-12-OP-B	SS-12-OP-C
Sample Date:					2/18/2015 Duplicate	7/13/2015	7/13/2015 Duplicate	10/24/2013
	ODH Non-Residential Screening Levels		ODH Non-Residential Action Levels					
Parameters	Sub-Slab Soil Gas a	Indoor Air c	Sub-Slab Soil Gas b	Indoor Air d				
Volatile Organic Compounds								
1,1-Dichloroethane	160	16	1600	160	3.5 U	3.1 U	2.5 U	-
Benzene	20	2	200	20	7.6 U	6.8 U	5.3 U	-
Chloroform (Trichloromethane)	800	80	8000	800	24 J	15 J	11 J	-
cis-1,2-Dichloroethene	370	37	3700	370	140	96	64	-
Ethylbenzene	2500	250	25000	2500	9.3 U	8.2 U	6.4 U	-
m&p-Xylenes	2000	200	20000	2000	16 U	14 U	11 U	-
Naphthalene	29	2.9	-	-	12 U	11 U	8.5 U	-
o-Xylene	2000	200	20000	2000	8.3 U	7.4 U	5.8 U	-
Tetrachloroethene	250	25	2500	250	16 J	24	17 J	-
Trichloroethene	20	2	200	20	**1500[ab]**	**1300[ab]**	**800[ab]**	**1800[ab]**
Vinyl chloride	20	2	200	20	9.7 U	8.6 U	6.7 U	-
Radiology								
Radon-222	-	-	-	-	-	166 +/-8	-	-

Notes:

All units are in parts per billion by volume (ppbv)
J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.
- - Not applicable.
[ ] - Concentration was greater than applicable criteria.